

OBSERVATIONS ON THE BIOLOGY OF SOME TIGER BEETLES¹

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Tiger beetles have been reported as preys of toads by Kirkland (1897), Garman (1901), Force (1925), Schonberger (1945), Smith and Bragg (1949), Bush and Menhinick (1962), and also by Klimstra and Myers (1965). From April to September 1973, I analyzed the stomach contents of 283 American toads, *Bufo americanus* Holbrook from southern Quebec, and I found three *Cicindela punctulata* Olivier.

Within the same period, I also examined the alimentary tracts of 434 Leopard frogs, *Rana pipiens* Schreber from the same area, and I identified two *Cicindela repanda* Dejean and one *Cicindela sexguttata* Fabricius. Frogs have been previously recorded as enemies of tiger beetles by Frost (1924), Force (1925), Turner (1959), and by Korschgen and Baskett (1963).

According to my experience, toads and frogs are apparently minor enemies of cicindelids.

On April 24, 1973, while collecting tiger beetles in a sand-pit, in Choisy, three miles from Rigaud, a 9-year-old boy, A. Dube saw a spider seizing a *Cicindela repanda* Dejean. I quickly caught both animals. C. D. Dondale of the Entomology Research Institute, Ottawa, identified the spider as a female *Arctosa littoralis* (Jentz), family Lycosidae (Wolf spiders). Spiders are never mentioned as enemies of cicindelids.

In the spring and summer of 1973, some friends and I also observed the mating periods of *Cicindela* from Quebec. Mating has been observed in the daytime only.

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Cicindela duodecinguttata Dejean: Port-au-Saumon, July 2, in captivity, a pair (C. Gelinas).

Cicindela formosa generosa Dejean: Lanoraie, June 4, in captivity, a pair (F. Liard). Saint-Lazare, May 27 to 30, in captivity, fourteen pairs (A. Larochelle, P. Duval and J.-P. Pilotte).

Cicindela punctulata Olivier: Dollard-des-Ormeaux, July 24, in the field, a pair (J.-P. Tchang). Saint-Eustache, August 8, in the field, a pair (P. Duval).

Cicindela repanda Dejean: Choisy, May 26, in captivity, two pairs (A. Larochelle, P. Duval and J.-P. Tchang).

Cicindela scutellaris lecontei Haldeman: Rigaud, May 7, in captivity, a pair.

Cicindela sexguttata Fabricius: Dollard-des-Ormeaux, May 20 to June 19, in the field and in captivity, nine pairs (F. Marcotte and J.-P. Tchang). Sainte-Agathe, May 20, in the field, a pair (P. Cloutier).

Cicindela tranquebarica Herbst: Lanoraie, June 4, in the field, a pair (F. Liard). Port-au-Persil, July 9, in the field, a pair (C. Gelinas). Port-au-Saumon, July 9, in captivity, a pair (C. Gelinas). Rigaud, June 13, in captivity, two pairs (A. Larochelle and J.-P. Pilotte).

These dates of copulation suggest hibernation in the adult stage for the above species, except for *C. punctulata*.

Furthermore, J.-P. Tchang and I had the opportunity to observe three interspecific copulations.

Cicindela scutellaris lecontei Haldeman (a male) with *C. sexguttata* Fabricius (a female): Rigaud, May 7, in captivity, a pair; the coitus lasted 3.5 minutes. Dollard-des-Ormeaux, May 20, in the field, a pair.

Cicindela scutellaris lecontei Haldeman (a male) with *C. tranquebarica* Herbst (a female): Rigaud, June 13, in captivity, a pair; the coitus lasted 15 minutes.

Interspecific copulation has been occasionally noted in the literature (Horn, 1915; Fattig, 1951).

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ABSTRACT. Enemies (toads, frogs, a spider) and mating periods are reported in some cicindelids, in southern Quebec. A. Larochelle, College Bourget, C. P. 1000, Rigaud, Quebec.

Descriptors: Coleoptera; Cicindelidae; southern Quebec, Canada.

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